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In memoriam Pál Széchényi. Paleoradiological study of a three-hundred-year-old mummy from Nagycenk

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The study of ancient mummies has contributed greatly to the development of paleoradiology. Many results of radiological examinations of human remains have been published since 1896, when the first study was made on an Egyptian mummy (Böni et al. 2004). As there are only few paleoradiological methodological references, it is necessary to develop new methods for X-ray examinations. On the other hand, we have only scanty information about the technical parameters, settings and values or positioning (Aufderheide 2003; Chhem 2008). Since 2001 in co-operation with the researchers of many radiology departments, I have managed to identify define appropriate technical parameters to be used in paleoradiology (Kristóf et al. 2004). Anthropological research of mummies in Hungary has been carried out in multidisciplinary framework (Pap et al. 1997; Pálfi et al. 2009). One of these case-studies, included in my PhD-research, is that of the three-hundred-year-old mummy of Pál Széchényi.

Archbishop Pál Széchényi's name appeared in the Hungarian history several times. The scientific study of Archbishop's mummy to be found in Nagycenk was carried out by our research team composed of the members of several institutions based in Budapest, Győr and Szeged in 2007 (Kristóf et al. 2010). The scientific examinations represented a milestone, since up till now it was unclear whether it was a natural or artificial mummy and the century-old question of whether Pál Széchényi was in fact a victim of arsenic poisoning in 1710 or this story was only a legend could also be answered.

The non-invasive examinations were carried out with multislice CT, traditional X-ray, biopsy, toxicology, energy-dispersive X-ray, X-ray fluorescent analysis, endoscope and 3D rapid-prototyping printing.

17 conventional X-ray radiographs have been made of the skull, trunk and extremities with computerized radiography. The CT examination was carried out by a 16-slices MSCT equipment. 277 and 557 slices of 2,0 and 0,8 mm thickness respectively were taken the skull. In the course of the examination of the whole body 576 and 1440 slices of 5 and 2mm thickness respectively were taken.

Except for his scull and extremities Pál Széchényi's mummy is in poor condition. The corpse was mummified artificially. There is no trace of removal of the brain. The small amount of brain remnants raise several questions. The Archbishop suffered from diffuse idiopathic skeletal hyperostosis (DISH). The small oval ring-like particles of calc density disclosed in muscles have raised suspicion of helminthiasis, e.g. trichinellosis. X-ray-fluorescency (XRF) analysis detected small amount of arsenic only on the surface of skin and buccal mucosa, but it was traceable neither in nails nor hair. The myth about arsenic poisoning of the Archbishop proved to be false. We also got a replica made of the mummy's scull with 3D printing from the MSCT data.

The paleoradiological examinations resulted in important findings about the condition of the mummy. In the future I would like to study more Hungarian mummies from the baroque era, especially of the presumed conservation method of Pauline monks and their burial customs.

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Characterization of the genus *Bipolaris* based on molecular, morphological and physiological features

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Members of the genus *Bipolaris* (*Ascomycota, Pleosporales, Pleosporaceae*) are imperfect filamentous fungi. Most of them have economical significance as plant pathogens infecting mainly cereals and other graminaceous hosts. However, three species are frequently recorded as human pathogens. *B. australiensis*, *B. hawaiiensis* and *B. spicifera* are agents of phaehyphomycoses (infection caused by melanin